

FOREIGN PRIORITY

The indication that the Foreign Priority documents and the claim for Foreign Priority have been acknowledged is noted.

INITIAL COMMENTS

It is noted that the previous rejection under 35 U.S.C §102 has been withdrawn. The comments regarding the Hepburn et al. reference (U.S. Patent 5, 974,788) have been repeated in the rejection of claims 1 and 8-14 under 35 U.S.C §103(a). The specific traversal of this rejection will be set forth below.

Also in Section 8 of the Office Action there was a response to arguments. This will be addressed under the heading Reply to Response to Arguments as set forth below.

RESPONSE TO REJECTIONS

Claims 1 and 8-14 were rejected under 35 U.S.C. §103(a) as being unpatenable over Hepburn et al. (U.S. Patent 5,974,788 "hereinafter Hepburn) (in view of Araki et al. U.S. Patent 5, 850,735 "hereinafter Araki). This rejection is traversed.

As previously discussed in claim 1, the exhaust-purifying means has a function also of a three-way catalyst. Thus, the gas purifying means in the context claimed provides a double function. In the last section of claim 1, "a substance decreasing the NO_x conversion efficiency of the exhaust gas purifying means is released during operation of the control means and is converted by said function of the three-way catalyst of the exhaust purifying means" has been claimed. The substance, for example, is a sulfur component

as explained in the description of Figures 4A and 4B of the drawings as set forth in the specification on page 7, lines 24-29.

As in the present claim (base claim 1), the exhaust purifying means has also a function of a three-way catalyst, while the substance decreasing the NO_x conversion efficiency is released from the gas purifying means, which is converted into a harmless substance of the function of the three-way catalyst.

As the light off catalyst has HC conversion efficiency that is constant (see claim 2 explanation below) and a lower O₂ storage capability than the exhaust purifying means, HC is converted into a harmless substance and most of the exhaust from the engine breakthrough in the light off catalyst. Accordingly, the substance decreasing the NO_x conversion efficiency is released from the gas purifying means during operation of said control means.

In Hepburn, in column 4, lines 7-12, Hepburn discloses the system design forces HC, CO, and O₂ breakthrough in the TWC (three-way catalyst). Namely, the TWC of this system is designed to reduce especially HC and CO purifying efficiency to promote chemical reactions in the NO_x trap (32) for creating xotherm in the trap.

Therefore, Hepburn does not have the above-function of each of the independent claims (claim 2 also discussed below) and does not solve the problem solved by the present structure.

The gas purifying means (32) was asserted to have a function of a three-way catalyst. But as identified in the reference, element 26 is the three-way catalyst (TWC). See, for example, Hepburn, column 2, lines 61-63. Also, in

identifying the light-off catalyst, element 26 was identified but as explained this is the TWC as disclosed in Hepburn.

While element 20 was described as the control means, it is correct that this is an EEC which has signals sent to it over conductors 38 and 40. See Hepburn, column 2, lines 24-29.

The Office Action at least correctly recognizes that Hepburn fails to disclose in specific detail of the mechanism which SO_x is purified by the exhaust gas purifying means. The Office Action then asserts that this difference is obvious from Araki et al. and then asserts that to use the method taught by Araki in the apparatus of Hepburn would have been obvious to one skilled in the art to minimize the generation of sulfur particulate matters which clog up the exhaust purifying means. It is considered that this is speculation not evidence and actually the Araki reference does not cure the inherent deficiencies of the disclosure of Hepburn.

With respect to the dependent claims rejected these claims are considered patentable at least for the same reasons as their base claim or intervening claims.

For the reasons set forth above the Examiner is requested to reconsider and withdraw the rejection of the claims under 35 USC §103.

SECOND REJECTION

Claims 3 and 4 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hepburn et al. in view of Araki et al. as applied to claim 1 above, and further in view of design choice. This rejection is traversed.

Initially, design choice is not a reference. Additionally a design choice is not applicable here because of the results achieved. See *In re Chu* (cited in the last Reply on page 6, second full paragraph).

Also in the rejection it was asserted that “there is nothing of record which establishes that the claimed maximum volume metric or weight of oxygen absorbed in a light-off catalyst presents a novel of unexpected result”[?]. This statement, as understood, is strongly traversed. For example, even a cursory review of the specification indicates the importance of the structure of claims 3 and 4. See for example, page 17, line 5-11 also see page 17, line 33 to page 18, line 25 of the specification. This is evidence of unexpected result which the Office Action has apparently ignored. Thus the features of claims 3 and 4 in view of the disclosure in the specification are objective evidence of non obviousness which by law the Patent Office much consider as recently set forth in *In re Dembiczak* 50 USPQ 2d 1614 1616 (Fed. Cir. 1999) wherein the Court stated as follows:

The ultimate determination of whether an invention is or is not obvious is legal conclusion based on underlying factual inquiries including (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of non obviousness (added)

For the reasons set forth above, the Examiner is requested to reconsider and withdraw the rejection of the claims under 35 U.S.C §103.

THIRD REJECTION

Claims 2 and 5 were rejected under 35 U.S.C §103(a) as being unpatenable over Hepburn in view of Takeshima (U.S. Patent 5,448,887). This rejection is traversed.

The comments regarding Hepburn were set forth in the reply to the first rejection which is incorporated herein. The addition of Takeshima does not cure the inherent deficiencies of the rejection set for using Hepburn as the base reference as explained supra.

For the reasons set forth above, the Examiner is requested to reconsider and withdraw the rejection under 35 U.S.C §103.

FOURTH REJECTION

Claims 6 and 7 were rejected under 35 U.S.C §103(a) as being unpatenable over Hepburn in view of Takeshima as applied to claim 5 above and further in view of design choice. This rejection is traversed.

As set forth above, the rejection based on the two references does not establish obviousness.

Also the use of design choice is improper. Design choice is not a reference. See the comments to the reply to the rejections of claims 3 and 4 supra

The assertion of what one skilled in the art would have recognized is truly speculation. Also the comment regarding the weighted amount of oxygen absorbed is important as set for in the reply to the rejection of claims 3 and 4 supra.

For the reasons set forth above, the Examiner is requested to reconsider and withdraw the rejections of the claims under 35 U.S.C §103.

REPLY TO RESPONSE TO ARGUMENTS

In Section 8 of the Office Action there was set forth a response to arguments previously presented.

It is considered that based on the further explanation as explained above that these comments have been answered.

Furthermore, the arguments set forth in Section 8 really rely on speculation and no evidence has been provided which is a requirement of U.S. Patent Law.

CONCLUSION

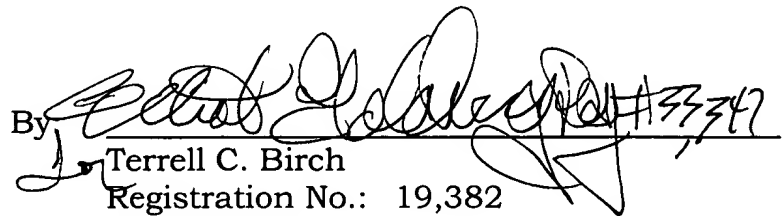
If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Mr. Elliot Goldberg at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By

A handwritten signature in black ink, appearing to read "Terrell C. Birch", is written over a horizontal line. To the right of the signature, the number "#33347" is handwritten.

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